

Application for Letters Patent of

the UNITED STATES OF AMERICA by –

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For:

LOAD TERMINAL COVER

Customer No.: 23569

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LOAD TERMINAL COVER

CROSS-REFERENCE TO RELATED PATENTS

[0001] Not applicable

10 STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
DEVELOPMENT

[0002] Not applicable

FIELD OF THE INVENTION

15 [0003] The present invention relates to electrical panelboards, switchboards or other electrical enclosures for circuit breakers, and particularly to a circuit breaker load terminal cover assembly for use therein.

BRIEF DESCRIPTION OF THE DRAWINGS

20 [0004] The features of the invention will become more clearly understood from the following detailed description of the invention read together with the drawings in which:

25 Figure 1 illustrates an exploded view of an electrical enclosure for circuit breakers incorporating circuit breaker load terminal cover assemblies constructed in accordance with the present invention.

Figure 2 is an isometric view of circuit breakers with circuit breaker load terminal cover assemblies constructed in accordance with the present invention installed.

Figure 3 is a isometric view illustrating one embodiment of a mounting bracket constructed in accordance with the present invention.

30 Figure 4 is a cross-sectional view illustrating in more detail certain features of the load terminal cover of Figures 1 and 2.

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5 Figure 5 is a cross-sectional view illustrating in more detail certain features of the load terminal closure of Figures 1 and 2.

Figures 6A-6E are cross-sectional views illustrating the installation and operating positions of a circuit breaker load terminal cover assembly constructed in accordance with the present invention.

10 Before one embodiment of the invention is explained in detail, it is to be understood that the invention is not limited in its application to the details of construction described herein or as illustrated in the drawings. The invention is capable of other embodiments and of being practiced or being carried out in various other ways.

15 Further, it is to be understood that the phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting.

DETAILED DESCRIPTION OF THE DRAWINGS

[0005] Figure 1 illustrates a typical panelboard, switchboard, load center or other electrical enclosure for circuit breakers, generally indicated by reference numeral 10, in which circuit breaker load terminal cover assemblies 14 of the present invention can be used. The electrical enclosure 10 generally includes a box like structure 18 that supports and encloses a panel interior 22, which can include a main breaker 26 or main lugs (not shown) and a number of branch circuit breakers 30. An enclosure cover assembly 34 completes the enclosure 10. The circuit breaker load terminal cover assemblies 14 are attached to a mounting bracket 38, which can be attached to a structural member 42 of the panel interior 22 or a back surface 46 of the box 18.

[0006] Figure 2 illustrates, in more detail, the installation and operation of the circuit breaker load terminal assemblies 14. Each load terminal cover assembly 14 includes a load terminal cover 50 and a load terminal closure 54. The load terminal cover 50 has a generally flat end wall 58, and a generally flat top 62. The end wall 58 is defined by a first end 66, a second end 70 and two generally parallel sides 74 intermediate the first and second ends, 66 and 70, respectively. The second end 70 of the end wall 58 is configured for attaching to the mounting bracket 38. The top 62 is

5 defined by a first end **78**, a second end **82**, and two generally parallel sides **86**. The top
62 defines a load terminal access aperture **90** for accessing the load terminal (not
shown) of the branch circuit breaker **30**. The end wall **58** defines a load conductor
aperture **94** through which a load conductor **98** passes for connection to the circuit
breaker load terminal. The first ends, **66** and **78**, of the end wall **58** and top **62**,
10 respectively, are integrally connected such that the end wall **58** is approximately
perpendicular to the top **62**. The second end **82** of the top **62** is configured to be
supportively engaged by a portion of a load end **102** of the branch circuit breaker **30**
proximate the circuit breaker load terminal. Each of the two generally parallel sides **74**
of the end wall **58** includes an integrally formed load conductor shield **106**, which extend
15 outwardly from and generally perpendicular to the end wall **58** in the same direction as
the top **62**. The two load conductor shields **106** are located adjacent the load conductor
aperture **94** such that a load conductor **98** inserted into the load conductor aperture **94**
is positioned between the two load conductor shields **106**. The length of the load
conductor shields **106** is such that a distal end **110** of each load conductor shield **106**
20 will be proximate the load end **102** of the branch circuit breaker **30** when the circuit
breaker load terminal cover assembly **14** is properly installed. Thus the load conductor
shields **106** provide an electrically insulating barrier around any uninsulated portion of
the load conductor **98** which might extend beyond the load end **102** of the branch circuit
breaker **30**. The closure **54** is generally flat and defined by a first end **114**, a second
25 end **118**, and two generally parallel sides **122** extending between the first and second
ends, **114** and **118**, respectively. A handle **126** extends outwardly from the first end **114**
and a latching nub **130** extends from the second end **118**. The closure **54** is pivotably
attached to the load terminal cover **50** for movement between a closed and an open
position as shown.

30 [0007] Figure 3 illustrates one embodiment of a mounting bracket **38**
manufactured in accordance with the present invention. In this embodiment the
mounting bracket **38** included an attachment foot **134** at each end for attaching to the
structural member **42** of the panel interior **22** or the back surface **46** of the box **18**. A
longitudinal section **138** of the mounting bracket **38** has a generally hook-like cross-

5 section defined by a long leg **142**, a short leg **146** and an intermediate web **148**. The long leg **142** defines apertures **150** at predetermined intervals along its longitudinal length.

[0008] Figure 4 is a cross-sectional view illustrating in more detail certain features of the load terminal cover **50**. As seen more clearly in this view, the second end **70** of the end wall **58** is configured for attaching to the mounting bracket **38**. The cross-sectional shape of the second end **70** of end wall **58** is complementary to the hook-like cross-section of the mounting bracket **38** in that a slot **154** is provided for receiving the short leg **146** and a foot **158** is configured to mate with the long leg **142**. A locking tab **162** extends from the bottom of the foot **158** and is positioned to be biasingly received in one of the apertures **150** such that the second end **70** of end wall **58** locks the load terminal cover **50** to the mounting bracket **38**. From the cross-sectional view of the load terminal cover **50**, it can also be seen that a pivot pin **166** is located generally at the juncture of end wall **58** and top **62**. A closure retaining slot **170** is defined in the first end **66** of end wall **58** immediately adjacent the pivot pin **166**, and a clearance aperture **174** is defined in the first end **78** of the top **62** immediately adjacent the pivot pin **166**. The end wall **58** can also define a venting aperture **178** for permitting gasses generated by the branch circuit breaker **30** to pass through the end wall **58**.

[0009] Figure 5 is a cross-sectional view illustrating in more detail certain features of the load terminal closure **54**. As seen more clearly in this view, the first end **114** also defines a pivot pin slot **182** and a retaining tab **186** extending from one end of the pivot pin slot **182** in a direction generally perpendicular to the handle **126**.

[0010] Figures 6A-6C illustrate in cross-section the installation of the load terminal closure **54** onto the circuit breaker load terminal cover **50**. As shown in Figure 6A, the load terminal closure **54** is held generally parallel to the circuit breaker load terminal cover **50**, and the retaining tab **186** of the load terminal closure **54** is inserted into the closure retaining slot **170** of the circuit breaker load terminal cover **50**. When the retaining tab **186** is fully inserted into the closure retaining slot **170**, the load terminal closure **54** is rotated toward the top **62** of the circuit breaker load terminal cover **50** until

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5 the pivot pin **166** enters the pivot pin slot **182**, as shown in Figure 6B. At this point, the load terminal closure **54** is moved forward until the pivot pin **166** is fully inserted into the pivot pin slot **182**, as shown in figure 6C.

10 [0011] Figure 6D illustrates in cross-section the load terminal closure **54** in its fully open position. In this position, the load terminal closure handle **126** engages the end wall **58** of the load terminal cover **50** and prevents further rotational movement.

15 [0012] Figure 6E illustrates in cross-section the load terminal closure **54** in its fully closed position. In this position, the load terminal closure latching nub **130** engages an end of the load terminal access aperture **90**, and the retaining tab **186** engages an inside surface of the load terminal cover end wall **58**, thereby holding the load terminal closure **54** in a closed position.